

## Fiber-Based Ultraviolet Laser System, Phase I

Completed Technology Project (2005 - 2005)



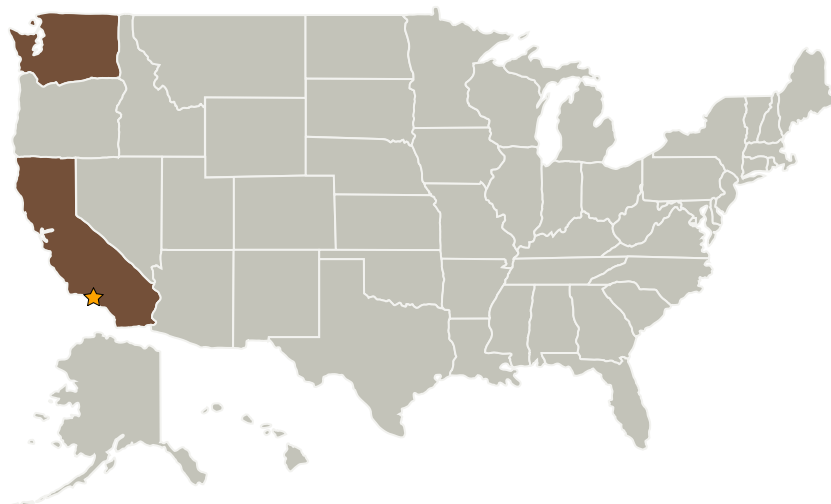
## Project Introduction

The purpose of this program is to develop a compact and efficient ultraviolet laser system for use in space-based uv-Raman instruments. The basis for this system will be a modulated diode seed laser followed by a fiber amplifier which is frequency-quadrupled to generate uv light at 245nm. The unique combination of a compact and efficient fiber amplifier with efficient harmonic generation will provide an ideal ultraviolet source for NASA missions in the Solar System.

## Anticipated Benefits

Frequency-doubled fiber lasers in the 490nm range can be used for display applications and in bio-medical instruments such as cell sorters, flow cytometers, and DNA sequencers. Frequency-tripled lasers in the 327nm range can be used for stereo-lithography and materials processing such as micro-machining. Frequency-quadrupled fiber-based systems near 245nm can be used for detection of chemical and biological agents.

## Primary U.S. Work Locations and Key Partners



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## Organizational Responsibility

**Responsible Mission Directorate:**

Space Technology Mission Directorate (STMD)

**Lead Center / Facility:**

Jet Propulsion Laboratory (JPL)

**Responsible Program:**

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Jet Propulsion Laboratory(JPL)	Lead Organization	NASA Center	Pasadena, California
Aculight Corporation	Supporting Organization	Industry	Bothell, Washington

Primary U.S. Work Locations	
California	Washington

## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

**Project Manager:**

Celestino Jun Rosca

**Principal Investigator:**

David Gerstenberger

## Technology Areas

**Primary:**

- TX08 Sensors and Instruments
  - └ TX08.1 Remote Sensing Instruments/Sensors
  - └ TX08.1.5 Lasers